We Claim:

1. A semiconductor device, comprising:

a resistor; and

a chalcogenide material thermally coupled to said resistor to permit heat transfer therebetween, said chalcogenide material being programmable between a first resistance state and a second resistance by supplying a current to said resistor to heat said resistor, substantially none of said current entering said chalcogenide material.

2. The semiconductor device of claim 1, wherein said resistor comprises a conductive material.

3. The semiconductor device of claim 1, wherein said resistor comprises at least one material selected from the group consisting of titanium-tungsten, tungsten, tungsten silicide, molybdenum, titanium nitride, titanium carbon-nitride, titanium aluminum-nitride, titanium silicon-nitride, carbon, n-type doped polysilicon, p-type doped polysilicon, p-type doped silicon carbon alloys, p-type doped silicon carbon compounds, and n-type doped silicon carbon alloys.

4. A semiconductor device, comprising:

a programmable resistance material programmable between a plurality of resistance states;

a first energy source supplying an electrical energy to said memory material to read the resistance state of said programmable resistance material; and

a second energy source supplying a second energy to said programmable resistance material, said second energy causing said programmable resistance material to be heated so as to program said material from one of said resistance states to another of said resistance states without causing substantially any electrical current to enter said memory material.

5. The semiconductor device of claim 1, wherein said second energy is optical energy.

6. The semiconductor device of claim 1, wherein said programmable resistance material is a phase change material.

7. The semiconductor device of claim 1, wherein said programmable resistance material includes a chalcogen element.

8. A method of programming a semiconductor device, said semiconductor device including a chalcogenide material programmable between a plurality of resistance states, said method comprising:

applying an electrical current to said device; and

converting at least a portion of said electrical current to heat energy, at least a portion of said heat energy programming said device from one of said resistance states to another of said resistance states, substantially none of said applied electrical current entering said chalcogenide material.